

Rio Madeira dams: Jirau and Santo Antonio Brazil

Sectors: Hydroelectric Power Generation

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By: BankTrack

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Contact:

International Rivers: [Brent Millikan](#)

[Project website](#)

Sectors

Hydroelectric Power Generation

Location

About Rio Madeira dams: Jirau and Santo Antonio

Located in the state of Rondônia - Brazil, the Madeira River is the principal tributary of the Amazon River, with its basin covering about one-quarter of the Brazilian Amazon. The Madeira River project consists of two huge hydroelectric dams: Santo Antonio (projected cost US\$ 4.35 billion, current estimate US\$ 6.7 billion, installed generating capacity 3,150 MW) and Jirau (projected cost US\$ 4.55 billion, installed capacity 3,300 MW).

The project is the cornerstone of the Brazil-Bolivia-Peru hub of the Initiative for the Integration of South American Infrastructure, or IIRSA. IIRSA is a blueprint for 335 large-scale infrastructure projects being proposed by the governments of South America, and supported by the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF), and Brazil's National Development Bank (BNDES).

The construction of the project - plus two additional dams upstream - would, according to the project sponsors, open a 4,200 km industrial waterway for barge passage, permitting transport of soybeans, timber, and minerals to Atlantic and Pacific ports.

In January 2007 the project was included in the Accelerated Growth Programme (PAC in Portuguese) - an ambitious Brazilian Federal Government plan to invest more than BRL 900 billion (US\$400 billion) between 2007 and 2010, in more than 2000 infrastructure development projects. Since then, the Rio Madeira dam project has been pushed forward rapidly.

What must happen

These mega-projects are not indispensable for providing energy for Brazil's development, although the government is trying to present them as such. The Brazilian government must be convinced that the river bank dwellers and indigenous peoples, and ecosystems along the rivers of Amazonia are worth protecting.

A key alternative to the Madeira River dams is increased energy efficiency. Losses in the distribution of energy in the country's electricity system - for both technical and commercial reasons - amount to 16.5% (compared to 6.5% on average in Europe). Tackling these losses would be another lucrative alternative to expensive mega-projects. Wind, biomass, and solar energy and small hydro projects could also contribute significantly towards meeting Brazil's future energy needs. With the global economic crisis, energy consumption in Brazil has fallen, providing an opportunity to reorient the country's energy policy.

In order to live up to their responsibilities and to protect their own and clients' assets as well as their reputation, financial institutions must abstain from getting involved in this project.

For further information, please get in touch. Our contacts are mentioned above.

Issues

Human rights and social issues

According to the project Environmental Impact Assessment (EIA), some 3,000 people will be forced to move from their homes, although judging from past dam projects in Brazil, this number is probably an underestimate. The decline in fisheries will seriously affect commercial and subsistence fishermen. Thousands of people living downstream will face declining crop yields as a result of the loss of the annual deposition of fertile silt on the flood plains, will be deprived of transportation and run the risk of mercury contamination.

Indigenous groups will be affected by thousands of migrants arriving in search of work on construction crews. Public health impacts in a region where malaria and other tropical diseases are endemic are likely to be substantial, with stagnant pools of water providing breeding grounds for mosquitoes and other disease-carrying insects. A study in August 2009 from the health and environmental department in Porto Velho, Rondônia, showed that since the construction of Jirau's plant began malaria incidents have increased 63,6%.

Furthermore, there are signs that indicate the presence of isolated indigenous groups in the area to be flooded by the dams.

Indigenous rights

Survival International has [stated](#) that "there has been very little consultation with indigenous peoples about the project, and they did not give their free, prior and informed consent for the dams to be built. This is in violation of Brazil's constitution and Convention 169 of the International Labour Organisation which has been ratified by Brazil."

Amazon Watch [documents](#) that Brazil's National Indian Foundation (FUNAI), the government indigenous affairs department, has strong evidence that indigenous peoples in voluntary isolation live in the region of the Madeira Complex. The two consortiums building the project disregarded warnings about the presence of these peoples. In late 2009, an expedition led by FUNAI and the Brazilian NGO Kanindé, among others, confirmed the presence of four communities of isolated indigenous peoples in the area where the Madeira Complex is being constructed. The report issued by the expedition concluded that the groups are likely to have already fled their territory due to noise coming from the construction sites. As has frequently happened in the past, the contact between isolated indigenous peoples and outsiders could decimate the indigenous peoples because of their lack of immunity.

Other human rights issues

Bolivian organizations filed a complaint at the Organization of American States (OAS) alleging violation of human rights, such as the right for information, due to Brazilian government's reluctance to consult the government of the neighboring country and perform studies to assess potential trans-boundary impacts of the Madeira River dams.

Populations living in the area affected by the dams say they have been pressured by the companies to move, despite the fact that they have not come to agreements regarding compensation and resettlement.

Violations of Brazilian and international labor legislation have already occurred since irregular working conditions at a construction site associated with Jirau's plant have been confirmed. Moreover, also in September, workers at the Jirau's construction site decided to strike for better payment and working conditions.

Environmental issues

The region is a treasure of biodiversity. The Madeira River supports the life of an estimated 750 fish species, 800 bird species, and other endangered rainforest wildlife, and is home to rubber tappers, Brazil nut gatherers, and fishermen. Protected areas, including a reserve used by people who extract natural forest products, will be inundated by the dams.

The Madeira River project will further contribute to the fragmentation of Rondônia's ecosystems and to the clearing of vast areas of the region's remaining forests. A 600% increase in deforestation rates over last year was already reported in the area surrounding the Rio Madeira, after the preliminary license for the dams was granted in July 2007. The dams will seriously affect migratory fish and other aquatic species on the Madeira. Several species of large catfish migrate some 4,500 km each year to the upper Madeira to reproduce. Construction of the dams will block these migration routes, affecting the survival of the catfish. In addition, the dams are likely to cause more flooding than expected due to the huge amount of sediments carried by the Madeira river (around 500 million tons/year, equivalent to all other rivers in the Amazon basin) and cause the disruption to 33 endangered mammal species that are found in the project area.

Many suspect that the project sponsors are after something more ambitious: opening the upper Madeira to navigation by fitting the dams with locks. The extra cost would be small. Lower transportation costs would encourage farmers to plant much more soya and grains - at the expense of the remaining forest.

Large dams in the rainforest also emit enormous quantities of greenhouse gases, including methane, contributing to global warming.

Gender aspects

The World Commission on Dams found that women and ethnic minorities were disproportionately affected by dam projects. As women are often responsible for ensuring the sustainable livelihoods of their families, impacts on these livelihoods through destruction of fisheries, flooding of agricultural land and forests, and displacement often result in women bearing a disproportionate share of the costs. It is women who are often left with the burden of caring for their families, finding alternative land and water sources and alternative livelihoods when these are taken away through the development of destructive dam projects.

Governance

Other applicable regulations

- ILO Convention 169
- A rule anchored in the Constitution of Brazil
- Brazilian legislation
- The Green Protocol (Protocolo Verde), signed between the Brazilian Ministry for the Environment and public banks
- The Protocol of Intentions, signed between the Brazilian Ministry for the Environment and Febraban, the Federation of Banks in Brazil
- In addition, Equator Principles apply to this project

This is a category A project. The most important IFC Performance Standards in the case of Rio Madeira are:

4. Community Health and Safety
5. Land Acquisition and Involuntary Resettlement
6. Preservation of Biodiversity and Sustainable Management of Natural Resources
7. Indigenous People

In December 2007, COIAB - an association that gathers indigenous peoples from the Amazon - issued a public statement demanding the cancellation of the environmental license and the auction of Santo Antonio dam. COIAB claims that indigenous peoples have not granted free, prior and informed consent to the project despite being affected, according to ILO Convention 169 ratified by Brazil and a fundamental safeguard of performance standard 7. Hence, banks that signed the Equator Principles CANNOT finance this project.

Banco do Brasil, Bradesco and Itaú-Unibanco are signatories of the Equator Principles. Moreover, the financing of Santo Antonio by private banks is based on the premise that the Principles apply.

Updates

Floods in the Madeira

Feb 20 2014

[Floods](#) in the madeira river are being linked to the Jirau and Santo António dams, in the madeira.

Latest update

Apr 13 2010

GDF Suez, the construction company partially owned by the French government and heavily involved in the construction of the Jirau hydroelectric dam, was nominated for the [Public Eye Award 2010](#). After a head-to-head contest with farmaceutical firm Roche GDF Suez ended in the second place.

Independent experts analyzing official project studies reported that due to sediment accumulation the flooded area may cover more than twice the 529 km2 indicated in the EIA, affecting protected areas and a forest reserve in neighboring Bolivia, and that impacts on migratory fish species may lead to their extinction. The Madeira dam projects have been the subject of official protests by the Bolivian government, and the country's Environment Directorate is now coordinating a process to analyze the EIA.

Financiers

Banks

[Banco Bradesco](#) Brazil [profile](#)

[Details](#) ▼

Debt – corporate loan

Loan with specific funding of BNDES for both Santo Antonio and Jirau dams. Equator Principles signatory

[Banco Espirito Santo](#) Portugal [profile](#)

[Details](#) ▼

Debt – corporate loan

Loan for the Santo Antonio dam

[Banco do Brasil](#) Brazil [profile](#)

[Details](#) ▼

Debt – corporate loan

Loan with specific funding of BNDES for the Santo Antonio and Jirau dams.

Uncategorised

Equator Principles signatory

Uncategorised

Coordination of the pool of banks that finance the Jirau dam

[Banif](#)

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Approached, interested

2009

10,02% stake of SPV MESA (Santo Antonio), 2nd quarter of 2009.

[Caixa Economica Federal](#) Brazil [profile](#)

[Details](#) ▼

Debt – corporate loan

Loan with specific funding of BNDES for the Jirau dam

[Itaú-Unibanco](#) Brazil [profile](#)

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Uncategorised

[Santander](#) Spain [profile](#)

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Advisor

Advising on financing structure of Santo Antonio

Debt – corporate loan

Loan to MESA with specific funding of BNDES for the Santo Antonio dam

Uncategorised

In January 2010 Santander sold a 5% equity stake of the special purpose vehicle MESA (Santo Antão 'nio). In May 2011 Santander reported it was suspending finance for the dam citing environmental and social concerns.

Uncategorised

Coordination of the pool of banks that finance the Santo Antonio dam

Uncategorised

Equator Principles signatory

[Sumitomo Mitsui Banking Corporation \(SMBC\)](#) Japan [profile](#)

[Details](#) ▼

Equity – share owner/manager

13 May 2013

Acquired 20% equity of ESBR Participaç?es S.A., which owns the Project - Mitsui & Co., Ltd, part of the Mitsui Group, acquired the equity *source: [link](#)*

Investment funds

[FI-FGTS](#)

[Details](#) ▼

Uncategorised

BRL 1.5 billion

Holds 9,98% equity share of the SPV MESA/Madeira Energy and acquired debentures of MESA valued at R\$ 1.5 billion (approx. US\$ 700 million) issued by Madeira Energy SA (MESA) in April 2009.

Multilateral development banks

[Interamerican Development Bank \(IDB\)](#)

[Details](#) ▼

Uncategorised

IDB backed Odebrecht debt issues for infra-structure investment

[World Bank \(IBRD, IDA\)](#)

[Details](#) ▼

Uncategorised

On 5 March, 2009, the World Bank approved a US\$1.3 billion loan to Brazil for "environmental protection" which is weak in terms of environmental performance criteria and a number of governance issues. Bolstering BNDES, part of money could be used for the Madeira River dams.

National development banks

[BNDES Brazil profile](#)

[Details](#) ▼

Uncategorised

BNDES announced that it will also finance part of the investments for the construction of the transmission lines (estimated total: R\$8 bn) to transport the energy from Porto Velho (in the state of Rondônia) to Araraquara (state of São Paulo), a distance of 2.450 km

Uncategorised

In the case of Santo Antonio, BNDES combines direct and indirect financing. Its direct financing is between R\$ 6.1 bn and R\$ 6.6 bn (65% of the estimated total). BNDES also mobilises a R\$ 2.51 billion co-financed portion from Santander, Bradesco, Unibanco, BES Investimento do Brasil, Caixa Economica Federal, Banco do Brasil, Banco do Nordeste and Banco da Amazonia

Uncategorised

The Brazilian Development Bank BNDES (Banco Nacional de Desenvolvimento Econômico e Social – the Brazilian Development Bank) is the main financier of both dams

Uncategorised

In the case of Jirau, its direct financing is R\$ 3.635 bn (US\$1.78bn) with a 20-year tenor (approved August 2009). BNDES also mobilises R\$ 3.585 billion in 25-year cofinancing from Banco do Brasil, Caixa Econômica Federal, Bradesco BBI, Unibanco and Banco do Nordeste do Brasil. The total sum of BNDES financing of R\$ 7.21 bn correspond to 68.5% of the estimated total cost of Jirau

Further information on finance:

- Brazil bank signs its largest loan, for 3,300-MW Jirau, [Hydroworld.com, 2009](#)
- Santander Bank reports suspension of funding for controversial Brazilian dam, [Survival International, 2011](#)

Related companies

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[Andritz Austria](#)

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Furnas Brazil

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Voith Hydro Germany